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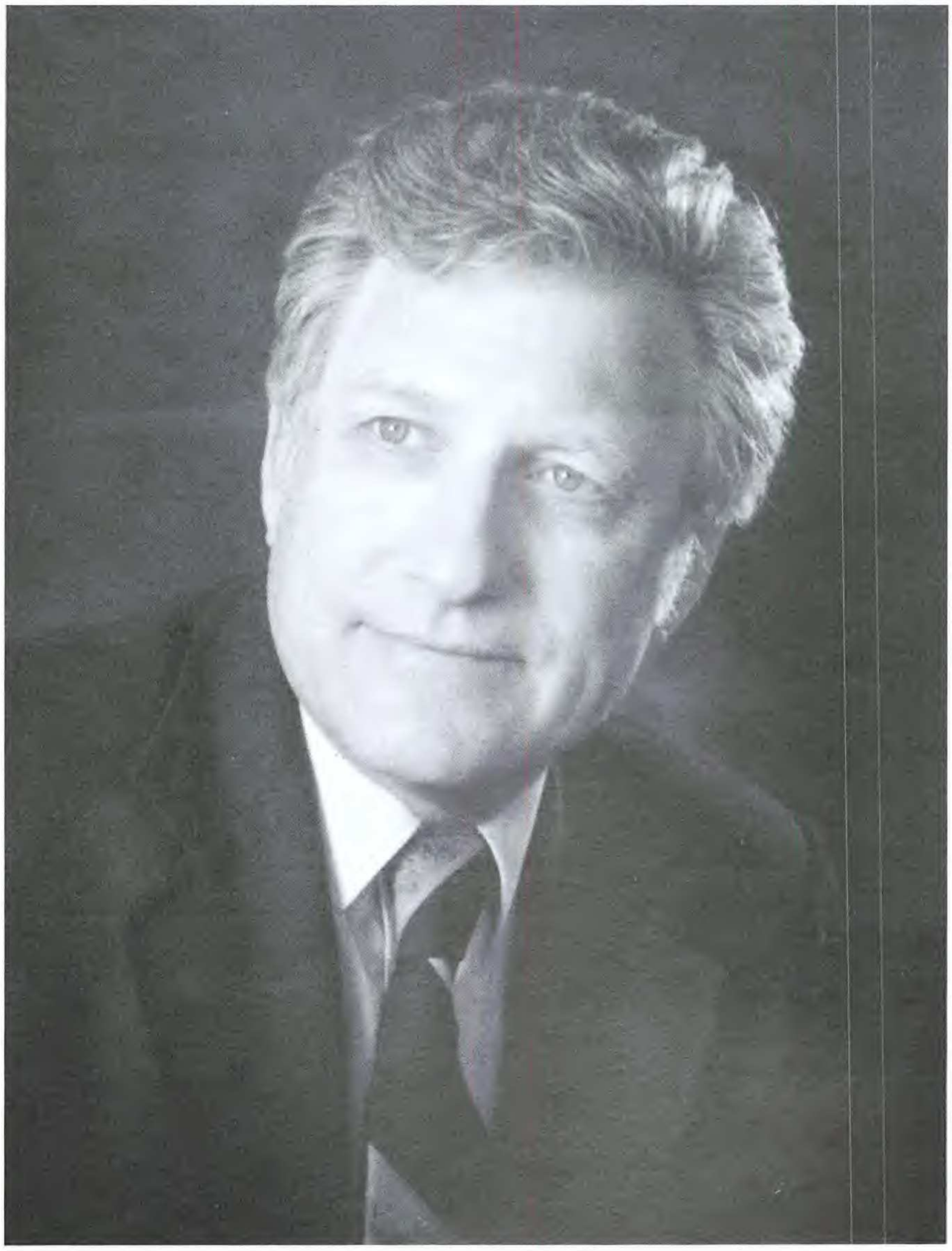
IN MEMORIAM

JOHN ALVORD CHURCHILL, M.D.
1920–2000
AN APPRECIATION



John Alvord Churchill was born 25 March 1920 in Boston, Massachusetts, the son of Alvord Barnes Churchill and Jean Adele Thompson Churchill. While John was a toddler his father finished law school and was encouraged to pursue a career in the growing city of Pittsburgh, so the family moved there. His parents were interested in nature, and at an early age he went with them on walks observing the plants and birds. He credits his earliest

interests in natural history as developing in the summer of 1925, when the family camped in a large tent in the woods on Goering Farm at Wexford, Allegheny County, Pennsylvania (about 30 miles from Pittsburgh). There he roamed in the woods and along a creek catching minnows. In 1926 he was taken touring in the family Dodge in New Hampshire, where his chief memory was of catching snakes. In 1929 a family friend returned from a hunting trip and brought him a dead Great Horned Owl that had been killed in a fight with a skunk. This he kept in a refrigerator until he could finish skinning and stuffing it. The refrigerator suffered from the experience, but John was not punished. We can all be grateful that John was not discouraged in his early endeavors at making natural history collections, because he became an enthusiastic and truly exceptional amateur botanist. At one time he aspired to collect a specimen of every vascular plant species in the United States. His extensive collections have been distributed throughout the United States and are of special note because of his interest in collecting rare plants and in establishing new distributional records.

John's earliest plant collections were obtained at Wexford in 1931, when he was 11 years old. Other early collections are from northern New Hampshire, where his family owned an old farm on Batchelders Brook, Warren Township, Grafton County. While in high school he had the opportunity to work with a number of botanists in the Botanical Society of Western Pennsylvania, especially John Bright, Charles Boardman, and John Wurdack (also a high school student at the time), who stimulated his interests in field work and botany. He also collected with Dr. O. E. Jennings of the Carnegie Museum of Natural History in Pittsburgh, who later authored *Wild Flowers of Western Pennsylvania and the Upper Ohio Basin*. By the time John entered Trinity College in 1939 he had already accumulated some 2000 herbarium specimens from western Pennsylvania and northern New Hampshire.

In 1930 John's father arranged for him to work in the Carnegie Museum on days when school was not in session. There, under the care of Reinhold Fricke, he was given a job of recording all the things that were in the crops and gizzards of a number of frozen Goshawks. These had been shot by farmers who received a bounty for the "chicken hawks" they killed. In the huge pile of extracted grasshoppers, mouse bones, and small-bird feathers there was no bit of a chicken. His results helped start the legis-

lation against killing hawks, owls, and eagles. A later assignment in the Museum was taking school children on tours around the museum and having them study the dioramas. This was his first taste of teaching, which he enjoyed and in which he saw a future. He also asked challenging questions of various members of the Museum staff, such as: why can it be seen from maps that the coasts of America seem to align with those of Europe and Africa and why do some small dinosaurs with small forelegs look like chickens? The money he earned he saved for trolley fare for getting to the Museum as frequently as possible.

John came up with the idea that it would be useful to put in some work in each specialty laboratory in the Museum. In botany he was associated with Dr. Jennings. Field trips of the Botanical Society of Western Pennsylvania enabled him to form a lifelong friendship with the late John Wurdack. This association stimulated his academic interests, resulting in the soaring of his school grades and, after skipping some grades, he graduated from Mount Lebanon High School in 1938.

One of John's early botanical exploits, in 1939 at age 19, was discovery of the rare species *Saxifraga aizoön* Jacq. and *S. cernua* L. on Mount Washington in New Hampshire. He was exploring a deep ravine cut into a flank of the mountain, and, while examining a cliff face, found *S. aizoön*, the first record for the species in New Hampshire. Frederic Steele (Rhodora 69: 485) noted that ". . . Dr. Churchill's discovery [of *S. aizoön*] was the most outstanding bit of botanizing on Mt. Washington in the past 50 years." Nearby on the mountain, John explored a shelf situated high in a vertical rock trough down which a cataract poured. On the shelf were some plants John assumed to be *S. rivularis* L., which is known from the Presidential Range. Nearly 30 years later Albion Hodgdon wanted to verify the *S. aizoön* record. John sent him a letter describing the area where it had been collected, and remarked that the shelf looked attractive but contained nothing unique, only *S. rivularis*. In 1967 Hodgdon and two colleagues found *S. aizoön* and inspected the rock trough. They decided they could not reach the shelf without undue risk, but did get close enough to use binoculars to examine the plants, discovering to Hodgdon's surprise that they seemed to have the features of *S. cernua* rather than *S. rivularis*. Subsequently the Churchill specimen in the Michigan State University Herbarium was examined critically and found indeed to be *S. cernua*, a principally

Eurasian species previously known in the conterminous United States only from northern Minnesota and the high mountains of Colorado.

John completed a pre-med program at Trinity College in Hartford, Connecticut, in 1942 and graduated from the University of Pennsylvania College of Medicine in 1945. While in medical school he met Dr. Edgar Wherry, who encouraged his botanical interests by including him on field trips. He also served in the U.S. Army, advancing from Private First Class to First Lieutenant. In 1946 he held a rotating internship at the Hospital of the University of Pennsylvania and in 1947 started training in neurology, as a Kirby-McCarthy Research Fellow. During this time he received a leave-of-absence to serve, at the invitation of Dr. Wherry, as physician for an expedition of scientists studying the biology of the Gaspé Peninsula. During this expedition he became acquainted with botanists Pierre Dansereau, Stanley A. Cain, W. H. Camp, N. C. Fassett, Hugh H. Iltis, N. Polunin, E. Rouleau, M. Raymond, and future Secretary of the Interior M. Udall. Stanley Cain later introduced John to W. Herb Wagner, whom John credited with teaching him new dimensions in biology. He participated in various of Wagner's "tornado-type" field trips and considered that some of the most important Michigan collections in his herbarium were made on these trips.

In 1948 John began a specialty in child neurology at Children's Hospital of Philadelphia and in 1950 became an assistant professor of neurology. He soon moved to the Montreal Neurologic Institute to complete training in EEG, and then started a private practice in neurology at Hartford, Connecticut. He also had a clinical appointment in neurology at the Yale School of Medicine. In 1953 he moved to Henry Ford Hospital in Detroit where he set up the first child neurology service in Michigan. In 1954 he was sent to Puerto Rico to survey the situation for developing a free breeding colony of macaques for the National Institutes of Health (NIH). In 1960 he went to England and Scotland to study children with cerebral palsy. In 1961 he was appointed associate professor of neurology at Wayne State University, and in 1967 was Chief of Pediatric Neurology of the Perinatal Research Branch of the National Institute of Neurological Diseases and Blindness (NIH) in Bethesda, Maryland. There he was faced with the difficult task of working out the methodology for analyzing neurological data, which he successfully solved. In 1972 he re-

turned to Wayne State University as full professor, working also in Detroit at the Lafayette Clinic, an agency of the Michigan Department of Mental Health. James Wells noted in a memorial address that John was revered as one of the best minds in neurology in the state of Michigan.

In 1981 John married Nadine Mitchell. John and Nadine formed a potent botanical team, and she participated extensively in his plant collecting activities. In 1983 he found working conditions in his department at Wayne State so rife with turmoil that he submitted his resignation. He and Nadine moved to Johnson City, Tennessee, where he took the position as professor of neurology in the new medical school of East Tennessee State University. The direction of this move may have been influenced as much by his desire to be intimately associated with the rich flora of the Southern Appalachians as with the escape from Detroit. The new position was linked with the Mountain Home Veterans Administration Hospital. In 1988, after the five years he had planned to spend in the position, he reduced his responsibilities in medicine to that of Clinical Professor at Eastern Tennessee State University and Consultant of Neurology for the Department of Health of the State of Tennessee. More or less simultaneously he increased his participation in botanical activities and in 1990 became a Voluntary Consultant in Botany for the U.S. Forest Service in Cherokee National Forest. In this role he served as the expert in locating rare species and identifying plants. From 1984 to 1994 he was the Appalachian Wildflower Celebration trip leader, and until very recently was the Roan Mountain Naturalists hike leader on their spring and fall rallies.

Although his professional duties in medicine left little time for his avocation in botany, John doggedly pursued his botanical interests throughout his entire medical career. In his memorial address, Jim Wells noted that John professed to know the Latin name of every plant in the United States. His labels, probably now familiar to virtually everyone who has studied herbarium specimens of this flora, have the heading "American Flora." While living in Michigan one of his active botanical pursuits was the study of the distribution of the sedge genus *Carex* in the state. He probably increased known county records for this genus by over 20% after the genus in Michigan was treated, in 1941, in a paper by F. J. Hermann. Churchill's contribution to our knowledge of *Carex* is evident from his collection of 482 specimens, includ-

ing 114 species and varieties, that were among the initial contributions of his herbarium to MSC in 1966.

That the Churchill Herbarium came to Michigan State University was something of a historical accident. John Beaman, then Curator of the Beal-Darlington Herbarium (MSC), was on leave in 1965–66 as a senior postdoctoral research fellow at the Smithsonian Institution. During that time he had returned briefly to Michigan and happened to be in the herbarium on a day that Churchill was visiting Warren Stoutamire, who was serving as Acting Curator of the Beal-Darlington Herbarium. In an informal chat, John more or less wondered out loud what he could do with his herbarium, which was getting too large for him to effectively manage. He recognized that his collection had grown to such importance and size that it should no longer remain a private possession, but rather should be generally available to scientists. Beaman suggested that it could be given to Michigan State University, and thus was initiated the contribution, which ultimately amounted to more than 30,000 specimens—by far the largest collection in the herbarium from a single donor. At the time of the first formal donation in 1966, about 6000 specimens were involved.

On a regular basis, generally two or three times a year, John shipped boxes of specimens to the Michigan State University Herbarium, the most recent received in 2000. Each carton was numbered, with more than 170 having been received over the years. The records show that 29,742 specimens had been accessioned by the end of 2000, but this is less than the total received, because for ten or more years records were not properly kept of the cryptogamic collections. He contributed at least 850 bryophytes, probably many more, and an unknown number of fungi, probably amounting to more than 1000. Most of his collections were made by himself or with his wife Nadine, but he also engaged in an active exchange program, which resulted in many collections from foreign lands, particularly Mexico, Guatemala, Chile, Canada, Sweden, China, and Siberia. Most likely every state in the United States is represented by one or more of his collections, but numerous collections are from Michigan, California, Hawaii, Pennsylvania, New Hampshire, Texas, and the southeastern United States. When he went to medical conventions, John managed to collect in the vicinity of those meetings. He also exchanged actively with other field botanists, with the

result that collections by botanists such as Duane Atwood, Bruce Bartholomew, Hal DeSelm, Paul Fryxell, Ron Hartman, Robert Kral, James Reveal, Tony Reznicek, and Dale Thomas are now among the Michigan State University Herbarium holdings. In some cases, John took the information from the labels of these collectors, and transferred it to his own labels. This practice can lead to some confusion if his labels are not read carefully.

John kept a record of every specimen he gave to the Michigan State University Herbarium, and maintained a continuing interest in the accuracy of the determinations. His policy was to send one specimen for each species, subspecies, or variety for each state. In the case of adventives, he sent only one specimen per species. In his active exchange with other collectors all the material he received as exchange was forwarded to MSC after the specimens had been studied and recorded for his files.

The Churchill specimens are noteworthy not only for their pure scientific value but also for their utility in teaching plant systematics at Michigan State University. They were carefully pressed and dried, with the leaves, flowers, and fruits arranged for most effective display when mounted. In graduate-level courses concerning the families of vascular plants, specimens are often selected from the main herbarium collection that illustrate family characteristics. It often has happened that Churchill collections are the very best ones, and occasionally the only ones, in the herbarium for this purpose. John once indicated that in his youth he had been trained by John Bright in the "press-in-the-wind" school, which meant carefully arranging the plants in the pressing papers at the time they were collected and drying them quickly to preserve as much color as possible.

In the 1970s John apparently decided that he had accomplished about all he could in collecting vascular plants in the United States. He therefore expanded his botanical activities in three directions, turning his attention first to bryophytes, then to fungi, and ultimately to lichens. Likewise he expanded his geographical horizons, traveling widely throughout the United States and even making one trip to Costa Rica, so that he could contribute tropical plants to the Michigan State University Herbarium. He used a copy of Grout's *Mosses with a Hand Lens and Microscope*, on loan from the Herbarium, for identifying his moss collections. He worked with Alex Smith at the University of Michigan to learn about fungi and was beginning to study lichens at the time of his

death. Thus far MSC has received 52 of his lichen specimens, but apparently more were collected.

Shortly before his death, John had completed the manuscript on which he had been working for many years for a book on "A Botanical History of Medicine of the Southern Appalachian Region." John wrote the text and his wife Nadine prepared the illustrations. The manuscript, organized by family, genus, and species, is 300 pages long and includes 125 species, all illustrated. Cherokee Indian uses of plants are emphasized. Sections include a preface, a consideration of today's traditional medicine and herbal medicine, plant classification, use of fish in tests for plant toxins, and references to major literature. In a letter of 28 January 1999 to Alan Prather, John worried that he might never find a publisher for the book because of the way it was put together. He noted that part of it is for a general readership and is mostly about Appalachian Mountain people's experiences with plants.

Among John's special interests in plants, combining botany and medicine, were the potential toxic properties of plants that might be eaten by humans. One project in this area concerned comparing fruits of the European *Sorbus aucuparia* L. with those of the native American species *S. decora* (Sarg.) C. K. Schneid. and *S. americana* Marshall. His hypothesis was that the European species contain more cyanide than do the North American species. On the basis of their knowledge of *S. aucuparia*, the Pilgrims apparently did not eat the fruits of the American species, as had been advised by the Indians. Had they done so, they might have avoided the scurvy they suffered. John used a cohort of minnows to test the relative toxicities, and also invented a device used to analyze the amount of cyanide in the species. A Churchill "principle" that came out of his research on toxic plants was that "prickly plants aren't toxic." One conclusion derived from his experiments on toxicity was that in the case of hardwood trees, the young leaves are more toxic than mature leaves. He felt that toxic substances in leaves were not merely the end products of metabolism, but were produced at an early stage of development.

His studies of potentially toxic plants resulted in some annotations on his herbarium labels that botanists, unaccustomed to such information on specimens, find quite memorable and sometimes amusing. For instance, on a specimen of *Angelica triquinata* Michx. [*Churchill 86137* (MSC)] John made the following note: "Fish study: root 2.5 gm/dl – dead in 10′, at 0.16 gm/dl –

stupefied long time." John also tested ways to counter toxicity, as he reported from *Zizia aurea* (L.) W. D. J. Koch [*Churchill 86219* (MSC)]: "in 2.5 gm/dl – sedated but revived in HOH. (Would have died if left)." No botanist will be surprised at the results from *Cicuta maculata* L. [*Churchill 84173* (MSC)]: "Fish killed!"

About 23 years ago John had heart bypass surgery, which stood him in good stead, because he continued to live a most active life in both medicine and botany. In January 2000 he experienced chest pains suggesting the recurrence of heart problems. His cardiologist suggested that he should have another operation, but the prognosis for success was not very favorable. John was still in the process of finishing his book and decided that that objective was more important than taking a risk with surgery. In the summer of 2000 he finished the book. Nadine noticed that he did not look entirely well during that time, but John made no complaints. On September 14 he was taken to the hospital in Johnson City with what appeared to be a minor heart attack. A week later he experienced more serious difficulties and his condition deteriorated until his death on 18 November. He is survived by his wife Nadine, brother George, and daughter from a former marriage, Suzanne E. Churchill. With his passing both botany and medicine have lost a brilliant, dedicated, selfless, and indefatigable scientist, practitioner, and field botanist. He published about 50 papers in the area of medicine and the 11 botanical papers listed below. Among his greatest legacies, however, are the collection, organization, and donation of some 30,000 herbarium specimens that have been made available to botanists in perpetuity through donation of his herbarium to the Michigan State University Herbarium.

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